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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,760	11/26/2003	Ravi Srinivasan	AIRIP0106USA	7203
43076	7590	12/20/2004	EXAMINER	
MARK D. SARALINO (GENERAL) RENNER, OTTO, BOISELLE & SKLAR, LLP 1621 EUCLID AVENUE, NINETEENTH FLOOR CLEVELAND, OH 44115-2191			SHRIVASTAV, BRIJ B	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 12/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/722,760

Applicant(s)

SRINIVASAN, RAVI

Examiner

Brij B Shrivastav

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11.26.03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 2, 4-6, 12-18, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Beresten (US 5,619,996).

As regards to claim 1, Beresten teaches a first end ring having a generally annular opening, and at least one of a second end ring and an end cap (figure 3, numerals 41, 42, the end cap is shown by diagonal scratches in the end ring 42), and an anterior extension formed on the first end ring and on the at least one of the second end ring and the end cap (figure 3, structures shown by numerals 50 and 51 will function as anterior extensions on assembling the coil). Further, Beresten teaches a plurality of elongated segments coupled to and positioned circumferentially around the first end ring and the at least one of the second end ring and the end cap to form a coil volume, wherein a first elongated segment and a second elongated segment are spaced about the anterior extension to facilitate access into the coil volume (figure 3, numeral 40).

As regards to claim 31, Beresten teaches a head coil, including an end cap, an end ring, and a plurality of legs spaced apart azimuthally by 45 degrees (figures 1-3, numerals 41 and 42, numeral 42 also represents the end cap; and numerals 40,

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representing the legs; columns 5 and 6, lines 37-49 and 17-50). Further, Beresten teaches a plurality of bridging drive points in push-pull configuration (figure 6, numerals 46, 47; column 6, lines 61-67).

As regards to claims 2, 4-6; and 12-18 Beresten further teaches opening in the anterior extension, and elongated segments spaced azimuthally at various angles, and the coil is configured in low or high configuration, and can accommodate whole body or body parts or head of a patient (figures 1-3, column 5 and 6, lines 37-49 and 18-50).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 7-11, 19-26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohling et al (US 6,611,702), and further in view of Beresten (US 5,619,996).

As regards to claim 1, Rohling et al teach a radio frequency pediatric coil for magnetic resonance imaging analysis, having a first end ring with annular opening, and a second end ring (figure 1-3, numeral 200 and 210), Further, Rohling et al teach a plurality of elongated segments coupled to and positioned circumferentially around the end rings (figure 1-3, numerals 220). However Rohling et al do not teach an anterior extension formed on the first end ring and on the second end ring, and the end cap to form a coil volume, wherein a first elongated segment and a second elongated segment

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are spaced about the anterior extension to facilitate access into the coil volume.

Beresten teaches an anterior extension formed on the first end ring and the second end ring and the end cap of the coil, wherein a first elongated segment and a second elongated segment are spaced about the anterior extension to facilitate access into the coil volume (figure 3, structures shown by numerals 50 and 51 will function as anterior extensions on assembling the coil, and in figure 3, diagonally scratched structure is shown as a cap ).

It would have been obvious to one of ordinary skill in the art to adapt Beresten's elongated segments and the end cap into the pediatric coil of Rohling et al to better shield the coil for improved imaging.

Claims 3, 7-11 and 19-26 are further rejected, as Rohling et al teach the coil being mounted inside an incubator and having various configurations, where whole body, parts of the body or head are imaged (figure 1).

Claims 7-11 and 30 are further rejected, as Rohling et al further teach a coil for neonates in an incubator having a plate-form and life sustaining facilities (figures 1,2).

3. Claims 32-33 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beresten, as applied to claim 31, and further in view of Srinivasan (US 6,177,797).

As regards to claim 32-33, Beresten does not teach various diagnostic connections leading to quadrature hybrid converter, Srinivasan teaches diagnostic connections leading to quadrature hybrid converter (figure 3, numerals 26, 28, also figures 5, 6, 8).

It would have been obvious to one of ordinary skill to adapt invention of Srinivasan with the invention of Beresten to improve signal to noise ratio, improving image quality.

As regards to claims 27-29, Beresten does not further teach decoupling circuits connected loop coils of the elongated segments. Srinivasan teaches decoupling circuits connected loop coils of the elongated segments (figure 6 and 8).

It would have been obvious to one of ordinary skill to adapt Srinivasan's decoupling circuits with the RF coil of Beresten to improve signal to noise ratio.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brij B Shrivastav whose telephone number is 571-272-2250. The examiner can normally be reached on 7 AM to 4 PM.

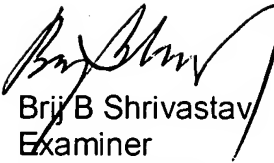
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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December 11, 2004

  
Brij B Shrivastava  
Examiner  
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